

This listing of claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS

Claim 1 (Cancelled).

2. (Previously Amended) A minimally invasive method of holding two valve leaflets in a patient together, said method comprising:

providing a clip having two end points which are separated from each other when said clip is in an open configuration and tending to return to a naturally closed configuration by reducing distance between said end points when in said open configuration;

placing said clip across two valve leaflets in a patient such that said two end points each penetrate completely a different one of the two leaflets while said clip is in said open configuration; and

allowing said clip to tend to return to said closed configuration, whereby the two valve leaflets are held together by said clip, wherein said two end points of said clip are each detachably attached to a tissue penetrating through a flexible member, and wherein placing said clip comprises penetrating and completely pulling one of the needles through one of said two valve leaflets and the other of the needles through the other of the two valve leaflets.

3. (Previously Amended) The method of claim 2 further comprising:

releasably grabbing one of said needles by a needle holder;

inserting a cannula through an incision towards the valve leaflets;

advancing said needle holder through said cannula with said one needle grabbed thereby;

operating said needle holder to cause said one needle to penetrate and be completely pulled through said one of said two valve leaflets from one side to the other side;

thereafter releasing said needle from said needle holder;

thereafter grabbing and pulling said needle again by said needle holder from the other side of said one of said two valve leaflets;

thereafter releasably grabbing the other of said needles by said needle holder, advancing said needle holder through said cannula with the other needle grabbed thereby, operating said needle holder to cause the other needle to penetrate and be completely pulled through the other valve leaflet from one side to the other side thereof;

thereafter situating said clip on both of said two valve leaflets; and

thereafter detaching said clip from the needles.

4. (Original) The method of claim 3 wherein said needle holder includes an outer tube and an inner member which has a front end adapted to releasably grab said needle and is slidable inside said outer tube.

5. (Original) The method of claim 4 wherein said needle holder further includes a spring which is disposed inside said outer tube and serves to apply a force on said inner member backward away from said front end.

6. (Currently Amended) The method of claim 4 + 2 wherein said clip comprises a wire made of shape memory material.

7. (Currently Amended) The method of claim 1 2 wherein said clip in said closed configuration is looped by more than 360°.

8. (Previously Amended) A minimally invasive method of holding two valve leaflets in a patient together, said method comprising:

providing a clip having two end points which are separated from each other when said clip is in an open configuration and tending to return to a naturally closed configuration by reducing distance between said end points when in said open configuration;

placing said clip across two valve leaflets in a patient while said clip is in said open configuration; and

allowing said clip to tend to return to said closed configuration, whereby the two valve leaflets are held together by said clip, wherein one of said two end points of said clip is detachably attached to a tissue penetrating needle through a flexible member, and wherein placing said clip comprises penetrating and completely pulling said needle through one of the two valve leaflets and thereafter the other of the two valve leaflets.

Claim 9 (Cancelled).

10. (Currently Amended) Apparatus for minimally invasive valve repair, said apparatus comprising:

a tissue penetrating needle, a flexible member, and a clip, and tissue penetrating needle being connected through said flexible member to said clip, said clip having two end points which are separated from each other when said clip is in an open configuration and tending to return to a naturally closed configuration by reducing distance between said end points when in said open configuration;

a needle holder including an outer tube and an inner member which has a front end adapted to grab said needle and is slidable inside said outer tube;

~~The apparatus of claim 9 including~~ a second needle and a second flexible member coupled to said second needle, wherein each flexible member is connected to one of said two end points of said clip; and

a pair of release mechanisms each being directly attached to one of said end points of said clip to releasably connect said flexible members to said clip.

11. (Currently Amended) The apparatus of claim 9 10 wherein said needle holder further includes a spring which is disposed inside said outer tube and serves to apply a biasing force on said inner member backward away from said front end.

12. (Original) The apparatus of claim 11 wherein said front end of said inner member has a slit for accepting and grabbing said needle therein.

13. (Previously Amended) The apparatus of claim 12 wherein said outer tube, said inner member and said slit are designed such that said slit opens wide enough to accept said needle therein and to release said needle therefrom when said inner member is pushed forward against said biasing force and said slit becomes narrower and firmly grips said needle therein when said inner member is moved backward.

14. (Currently Amended) The apparatus of claim 9 10 wherein said clip is generally U-shaped when in said open configuration.

15. (Currently Amended) The apparatus of claim 9 10 wherein said clip comprises a wire made of shape memory material.

16. (Currently Amended) The apparatus of claim 9 10 wherein said clip in said closed configuration is looped by more than 360°.

Claims 17-22 (Cancelled).

23. (Previously Amended) The method of claim 8 wherein said clip comprises a wire made of shape memory material.

24. (Previously Amended) The method of claim 8 wherein said clip in said closed configuration is looped by more than 360°.

25. (Previously Added) A minimally invasive method of holding two valve leaflets in a patient together comprising:

providing a clip having an open configuration, a closed configuration to which said clip tends to return, first and second ends which are separated from one other when the clip is in the open configuration, and a tissue penetrating needle detachably attached to the first end of the clip through a flexible member;

positioning the clip to span two valve leaflets in a patient while the clip is in the open configuration by penetrating and completely passing the needle through one of the two valve leaflets and thereafter the other of the two valve leaflets; and

allowing the clip to move toward its closed configuration to hold the two valve leaflets together.

26. (Previously Added) The method of claim 25 wherein positioning the clip comprises pulling the flexible member to pull the two leaflets together.

27. (Previously Added) The method of claim 26 wherein the clip second end is provided with a stopper.

28. (Previously Added) The method of claim 25 further comprising:

releasably grabbing the needle with a needle holder;

inserting a cannula through an incision in the patient;

advancing the needle holder through the cannula and toward the valve leaflets;

manipulating the needle holder to pass the needle through both valve leaflets;

manipulating the clip to pull the leaflets together and position the clip so as to span the leaflets;

releasing the needle from said needle holder; and

detaching the clip from the needle.